

ABSTRACT OF THE DISCLOSURE

Anastomosis systems include fittings and compression mechanisms for effecting end-end or end-side couplings of biological or synthetic bypass grafts to vessel locations. The fittings are tubular and surround end regions of the graft. In some applications an end region of the graft is everted and surrounds an exterior of the fitting, in which case the preferred compression mechanism is a retaining ring. A tool is used to evert the graft end region. In other applications, the fitting has an interior groove that receives an expandable retaining ring that urges the graft end region radially outwardly against the fitting. A graft deploying and securing system includes a needle for puncturing vessel tissue, a dilator, and a sheath adapted for containing a graft/fitting combination and guiding the combination into the vessel through an opening formed by the needle and dilator.